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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,998	09/06/2002	Arun Kumar Jaura	201-1225	1850

7590 05/01/2007

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EXAMINER	
COOLMAN, VAUGHN	
ART UNIT	PAPER NUMBER
3618	

MAIL DATE	DELIVERY MODE
05/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/064,998	JAURA ET AL.	
	Examiner	Art Unit	
	Vaughn T. Coolman	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 4, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie et al (U.S. Patent No. 5,217,085).

[claim 1] Barrie discloses (see FIGS 1-3) a cooling system for a vehicle powertrain having a motor (28) and a transmission (30) comprising:

said motor having a stator housing;

a cooling loop (shown in FIG 2) in heat conductive contact with said motor stator housing and with said transmission;

said cooling loop comprising a heat exchanger (62) and conduits providing a fluid flow connection between said motor stator housing said transmission, and said heat exchanger, said cooling loop further comprising a mechanical transmission pump (46) and an auxiliary pump (52); and said cooling system further comprising a controller (110), for receiving and processing input (104) from at least one vehicle sensor (102). Barrie does not disclose the controller commanding said auxiliary pump to operate when the processed input of the at least one vehicle sensor exceeds a pre-selected threshold. However, Barrie does control the valve (106) in response to the input from the vehicle sensor exceeding a pre-selected threshold (Column 5, lines

45-60). Barrie also teaches, in the embodiment shown in FIG 1, a controller (22 – not labeled in FIG) controlling a pump (10, 18) based on vehicle sensor input (24). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the controller as also taught by Barrie, since such a modification would provide the advantage of providing higher flow rates of the coolant in order to more efficiently cool the motor and transmission as well as being able to edit the threshold value easily.

[claim 3] Although not explicitly stated by Barrie, the controller disclosed is obviously a vehicle system controller as it is controlling a system, the cooling fluid pumping system, of a vehicle. If applicant is attempting to claim a *systems* controller, it also would have been obvious to one of ordinary skill in the art at the time the invention was made for the controller of the pump to be integrated into the main controller or CPU of the vehicle since such a modification would provide the advantage of centralizing the control modules and allowing faster and improved communication between the various vehicle systems' control programs.

[claim 4] Barrie further shows the cooling system including bypass conduits and bypass valves having actuators (shown in FIGS 2 and 3) that would be independently controllable by the controller to operate when the processed input from at least one vehicle sensor exceeds a pre-selected threshold (Column 5, lines 35-60). Barrie does not teach the auxiliary pump being reversible, however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to install a reversible pump in the location of auxiliary pump (52). The motivation to do so is that by observing the valve and conduit configuration of Barrie, it is obvious that one could provide increased coolant flow to the motor (above the maximum flow

rate of the main pump 46) by pumping the auxiliary pump in an opposite direction than disclosed by Barrie.

[claim 6] Barrie further teaches that an old and well known configuration for a powertrain containing a motor and transmission arrangement is in a series configuration (Column 1, lines 15-17).

[claim 9] Barrie discloses all of the elements of the claimed invention as described above except for the exact range of temperature that control the operating parameters of his cooling system. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the range of maximum temperature for the transmission and motor to be no greater than 250 degrees Fahrenheit and 630 [350] degrees Fahrenheit, respectively, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Prabhu et al (U.S. Patent No. 6,670,788)

[claim 5] Barrie teaches all aspects of the claimed invention as discussed above except for the cooling system's motor being an integrated starter-generator. Prabhu et al teaches a hybrid vehicle including an ISG or Integrated Starter Generator (11; Column 1, lines 17-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system shown by Barrie, with the ISG as taught by Prabhu, since the ISG is a known replacement for the motor/generator an performs additional functions such as automatic start-stop and regenerative braking for enhancing vehicle versatility and functionality.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Barnhardt (U.S. Patent No. 4,284,913).

[claim 7] Barrie discloses all of the elements of the claimed invention as described above except for it is not readily apparent whether the auxiliary pump is located at the interior of the transmission. Barnhardt teaches a cooling system for a vehicle powertrain having a motor and a transmission (shown in FIG 2) wherein an auxiliary pump (16) is located on the interior of the transmission. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the pump location as taught by Barnhardt, since such a modification would provide the advantage of protecting the pump from damage from external debris.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Harper (U.S. Patent No. 6,066,060).

[claim 8] Barrie discloses all of the elements of the claimed invention as described above except for it is not readily apparent whether the auxiliary pump is located to the exterior of the transmission. Harper teaches a cooling system for a vehicle including an auxiliary pump (50) located external to the transmission (shown in FIGS 1 and 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the external pump as taught by Harper, since such a modification, according to Harper, would provide the advantage of not reducing the operating efficiency of the transmission, in contrast to an internal pump (Column 8, lines 6-11).

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Tanaka et al (U.S. Patent No. 5,443,130).

[claims 10 and 11] Barrie discloses all of the elements of the claimed invention as described above except for the structural relationship of the stator and transmission housings. Tanaka discloses a transmission and motor configuration wherein the stator housing is overlapped by a transmission housing as well as being adjacent to the transmission housing (shown in FIG 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the housing configuration as taught by Tanaka, since such a modification would provide the advantage of absorbing thrust from the transmission gears in an efficient and safe manner (Column 8, lines 50-68; column 9, lines 1-15).

Response to Arguments

Applicant's arguments filed 2/26/2007 have been fully considered but they are not persuasive.

Regarding the arguments presented in the fourth paragraph of page 4, applicant is attempting to secure claims that are broader than the invention described in the disclosure. The applicant's description and quotation of Barrie does not negate the fact that Barrie discloses the elements of the *claimed invention*. Applicant has chosen to present only a small portion of the Barrie disclosure. Barrie also states that his system performs as follows: "when the fluid temperature is high [as sensed], [the cooling circuit] directs fluid to an oil cooler and then to the

cooling circuit." Also, "[I]f required, the bimetallic valve directs all the cooling oil through the external cooler for maximum heat rejection." Examiner contends that "maximum heat rejection" connotes cooling. The "two, separate flow loops" of Barrie are also part of a single "cooling loop comprising a heat exchanger and conduits providing a fluid flow connection between said motor stator housing, said transmission, and said heat exchanger" as claimed, and thus does not teach away from the claimed invention as argued by applicant. The fact that multiple fluid flow paths are available in the Barrie invention, thus providing certain operational advantages, does not exclude Barrie from meeting the claim limitations as described above.

Regarding the argument against Barrie's "mechanical transmission pump", applicant's claims are open-ended as relates to the term. Barrie's pump 46 is mechanically driven by the motor 54 and is associated with the transmission 30. The assembly applicant refers to includes a clutch 58 and a fan 60 which are mechanically coupled and driven by the motor 54 as well. Also, the pump 46 mechanically transmits fluid. The claim language does not require the specificity or detail applicant is arguing. As far as the allegation that "Barrie states that the pump 52 operates continuously", and thus does not disclose a controller-operated auxiliary pump, Examiner clearly stated in the Office action that the auxiliary pump was taken as item 46, and the control system was a combination of the embodiment found in figure 1 of Barrie with the embodiment of figure 2 for the purposes described above.

Regarding applicant's allegation of lack of evidence in re claims 3 and 4 and the lack of guidance as to which structure in Barrie is a "conduit" or "valve", the evidence is apparent to one of ordinary skill as explained in detail in the previous rejections. The common knowledge available to one of ordinary skill would also allow one to identify the conduits and valves

without guidance. For the benefit of the applicant however, 50, 84, and 106 are valves, and the single black lines located throughout the drawings represent conduits. If needed, a definition of each term could be provided as well.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vaughn T. Coolman whose telephone number is (571) 272-6014. The examiner can normally be reached on Monday thru Friday, 8am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

04/24/07

Travis Coolman
Examiner
Art Unit 3618

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